tled off the middle and south Atlantic coasts, causing a continuance over the Atlantic States of the abnormally warm weather which had already prevailed for an almost unbroken period of over two months.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	47	123	5, p. m.	42	70	2,950	4.5	656	27.3
II	4, p. m.	53	114	8, a. m.	45	64	2,475	3.5	707	29.5
III	7, a. m.	52	114	11, p. m.	46	60	2,575	4.5	572	23.8
IV	12, a. m.	52	114	16, a. m.	46	60	2,660	4.0	665	27.7
V	14, a. m.	54	114	21, a. m.	48	52	4,285	7.0	612	25.5
VI	19, p. m.	41	124	21, p. m.	48	122	520	2.0	260	10.8
VII	20, a. m.	43	109	26, a. m.	48	52	3,625	6.0	604	25.2
VIII	24, p. m.	53	114	29, a. m.	46	60	2,885	4.5	641	26.7
IX	29, a. m. 29, p. m.	52 41	114 88	3, a. m.*	48	52	3,000 2,150	4.0 3.5	750 614	31.2 25.6
Sums							27,125	43.5	6,081	253.3
Mean of 10 paths							2,712		608	25.3
Mean of 43.5 days									624	26.0
Low areas.										
I	1, a. m.	15	67	12, p. m.	46	60	5,200	11.5	452	18.8
II	1, a. m.	44	103	2, a. m.	48	89	725	1.0	725	30.2
III	3, a. m.	46	118	7, a. m.	48	52	3,295	4.0	824	34.3
IV	10, a. m. 18, a. m.	21 51	82 120	17, a. m.	46	60	3,150 3,250	7.0 4.0	450 813	18.8 33.9
V	11, a. m.	54	114	15, a. m.	48	52	2,935	4.0	734	30.6
VI	14, a. m.	22	60	19, a. m.	48	52	2,575	5.0	515	21.5
VII	15, a. m. 17, a. m.	44 33	116 115	24, a. m.	48	52	3,975 3,825	9.0 7.0	442 546	18.4 22.8
VIII	23, a. m.	51	120	25, p. m.	48	86	2,130	3.5	609	25.4
IX	26, p. m.	54	114	30, a. m.	49	88	1,220	3.5	349	14.5
Sums							32,280	59.5	6,458	269.2
Mean of 11 paths							2,935		587	24.5
Mean of 59.5 days									543	22.6

*October.

Lows.—With the exception of those of tropical origin, none of the low centers appeared south of the forty-second parallel except the lower section of No. VII, which was first noticed in southwestern Arizona. In fact they were for the most part limited to that portion of the country north of the forty-fifth parallel. Their mean direction of movement was almost due eastward or east-southeastward, and three of them, Nos. II, VIII, and IX, disappeared to the northeastward after leaving Lake Superior. No. II was a depression that had remained practically stationary over the extreme northwest since the morning of August 28, and it was not until the morning of September 1 that any progressive tendency developed. There was also a depression over the northwest from the evening of the 6th until the evening of the 10th, or until the tropical storm charted as No. I had turned eastward while leaving northern Kansas.

Of the three tropical storms—Nos. I, IV, and VI—No. I stands forth most prominently as the destructive hurricane of the early days of the month which created such terrible devastation and destruction at Galveston, Tex. A full history of this storm appears in another portion of this REVIEW. No. IV was a moderate disturbance, without destructive energy, which first appeared south of Cuba on the morning of the 10th. It reached the Louisiana coast by the evening of the 12th, and then recurved to the northeastward, reaching the southern New England coast on the morning of the 16th; it then moved northward to eastern Ontario, where it was joined by another depression of nearly equal intensity; it continued eastward in the track of the latter through Cape Breton Island into the Atlantic. No. VI was first reported by the captain of the steamship *Hungaria* in latitude 21°, longitude 60°, on the 13th. It moved slowly northward, apparently passing westward and close to the islands of Bermuda on the evening of the 17th. It moved more rapidly during the night of the 17th, and on the morning of the 18th was evidently central a short distance southeast of the southern New England coast, from whence it turned northeastward along the coast, passing off the Newfoundland coast on the morning of the 19th. This storm caused only moderately high winds on the New England and middle Atlantic coasts, but was evidently much more severe in its effects over its ocean path.—*H. C. Frankenfield, Forecast Official.*

RIVERS AND FLOODS.

Stages of water satisfactory to navigational interests prevailed during the month over the entire length of the Mississippi River. There was a fall of a few feet south of the mouth of the Ohio River, while to the northward there was a rise of a foot or more except between Cairo, Ill., and the mouth of the Missouri River, where there was but little change, the fall in the Missouri counterbalancing the rise which came down from the upper Mississippi. There was also a general fall of 1.5 to 3.5 feet in the Ohio River, the maximum fall occuring over the lower river. The Tennessee River fell considerably and navigation was suspended on its upper portion for the first few days of the second decade of the month, the river at Chattanooga, Tenn., reaching the lowest stages recorded for corresponding periods since 1883.

Nothing further of interest was noted except in Texas, where heavy rains from the 20th to the 23d, inclusive, and later in northwestern Texas, caused very rapid, and in many places, destructive floods over the Brazos, Trinity, and Colorado river districts. Along the Brazos River excellent opportunity was afforded to test the efficiency of the newly organized flood service. Warnings of danger-line stages at Waco, Tex., were issued on the 24th, and for that portion of the river between Waco and Hempstead, Tex., on the 27th. These warnings, which were issued from the Weather Bureau Office at Galveston, Tex., were accurate and timely, and the new service has been the subject of much favorable comment by those who are particularly interested. The greater portion of the damage done was unavoidable, and was limited chiefly to the loss of cotton and other field crops in the lowlands. In the vicinity of Fort Worth, Tex., where the rainfall was torrential, the Trinity River rose 20 feet during the night of the 20th. On the 27th a great volume of water came out of the West Fork of the Trinity, and on the 28th the main river at Fort Worth reached a height of at least 35 feet, and was more than one mile wide. One life was lost near Dallas, Tex., and the damage by overflow to crops, buildings, and railroads amounted to perhaps $100,000. Conditions along the Colorado River were very similar, and while no estimates of the damage have been received, it is very probable that the total amount of the loss will be fully as great, if not greater, than that along the Trinity River.

The highest and lowest water, mean stage, and monthly range at 129 river stations are given in Table XI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Forecast Official.*